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ABSTRACT

This paper lays out a set of general principles and philosophical assumptions for an educational program for Coast Guard officers. The central theme is the assumption that decision-making in a broad range of contexts is the key feature that characterizes the function of commissioned officers. The concept of educating future officers to make such choices is related to an established model of intellectual development in order to make the connection to course and curriculum design decisions. A section titled "General Structure of the Officer Preparation Curriculum" identifies the basic components of the educational program. A section on "The Importance of Style" follows with a discussion of unity of purpose for the curriculum. Two sections, "Identifying the Issue" and "Finding the Theme," discuss the goal of educating for choice making. The next section, "Making Choices," explores the principle of free choice in more detail. Subsequent sections translate these ideas into the reality of a military college curriculum: "Choice and the Commissioned Officer," "Attributes of Choice-makers," "Relating Choice to Education," "Educating for Choice-Making," "The Basic Tools," "Putting Theory into Practice," and "Generalizing the Process." "Is It Working?" addresses evaluation and how to build it into the educational system. Six references are included. (JB)

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William A. Sanders
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ABSTRACT

In order to make intelligent decisions about the overall structure of the academic curriculum and to determine if the desired outcomes are being achieved, it is necessary to understand the general design principles upon which the curriculum is based. In other words, it is assumed that there exists an appropriate philosophical statement of purpose that provides theoretical justification for curricular decisions. This paper describes a model that can play this role at the Coast Guard Academy. The central theme is the assumption that decision-making in a broad range of contexts is the key feature that characterizes the function of commissioned officers. The concept of educating future officers to make such choices is related to an established model of intellectual development in order to make the connection to course and curriculum design decisions.

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Educating Coast Guard Officers

William A. Sanders

Introduction

More than half of the newly commissioned officers in the Coast Guard, and an overwhelming majority of those in the most senior grades, are graduates of the Coast Guard Academy. This is a sharp distinction from the other armed forces, whose commissioned officer ranks are drawn from a much wider range of backgrounds. The real and potential influence of the academy experience on the attitudes and capabilities of the officer corps is thus genuinely unique to the Coast Guard. The academy programs and their graduates may play an exemplary role in the other services, but in the Coast Guard they are instrumental. Given the size of the Coast Guard, the critical mass needed to maintain a viable Academy, and the numbers that would be required to justify a CGROTC program, this situation is unlikely to change in the foreseeable future. Only a decision to increase the size of the Coast Guard dramatically or to close the Academy could have a significant impact on the source distribution of Coast Guard officers. Thus the Academy can be expected to continue as the predominant source of senior Coast Guard leadership.

The influence of the Coast Guard Academy is not determined solely by the proportion of senior officers who are its graduates. There are significant differences in institutional culture and management style that further inhance the long-range impact of a CGA education. All of the Department of Defense services maintain large secretariats staffed by armies of highly educated civilian specialists. These intellectual bureaucrats engage in a wide range of executive and managerial activities, such as strategic planning, policy studies, operations analysis, and financial management. Commissioned officers are thus able to concern themselves primarily with the operational aspects of the service missions, and the officer preparation curricula can concentrate on developing the attributes that are most critical to those roles.

The Coast Guard, by contrast, has no large civilian intellectual bureaucracy to match those of the other services. To the extent that the functions mentioned above are carried out by or for the Coast Guard, they are generally performed or monitored by commissioned officers. Furthermore, the small size of the commissioned officer corps makes it impractical to maintain the variety of specialty tracks that are possible in the other services. Thus Coast Guard officers must be prepared to perform a uniquely broad range of staff and policy functions in additional to their operational roles.

It should be obvious from this discussion that the initial and continuing education of Coast Guard officers presents a unique set of challenges. In particular, the academic and professional development programs at the Academy must be carefully designed with the unique career requirements of Coast Guard officers clearly in mind. Although the other service academies are useful models, offering a variety of successful practices that can be adapted to the CGA environment, copying their programs and matching their performance are not satisfactory goals. Our program must be tailored to the unique needs of the Service. The purpose of this paper is to lay out a set of general principles and assumptions that can provide a philosophical basis for the design and presentation of educational programs for Coast Guard officers. It is intended to serve as a source document for the Curriculum Committee, for Department Heads, for course directors, for individual instructors, and for any others who must concern themselves with the design and delivery of the curriculum.

General Structure of the Officer Preparation Curriculum

Because the Coast Guard Academy exists for the sole purpose of preparing young men and women for service as commissioned officers, it is obvious that the academic and professional

development programs must provide the cadets with a basic arsenal of intellectual skills and knowledge that will enable them to meet the challenges thrust upon them as junior officers in the operational arena. If they are to continue to develop as effective leaders and managers, the academic curriculum should include a study of the basic organizational and operational principles and models around which the Coast Guard is designed and operated. For reasons that will be discussed in more detail below, it is important for both efficient learning and long-term value that this portion of the curriculum be designed with particular care. Its goals must not be allowed to degenerate into nothing more than the development of task-performing skills.

Since many specialized and technical functions are either performed or monitored by mid-grade commissioned officers, their undergraduate education must prepare them either to step into those roles directly or to qualify for appropriate graduate programs. This is one of the basic rationales for the requirement that each cadet complete an academic major. It is not the sole justification, however, since the experience of completing a prescribed course of study is almost universally believed to be an essential part of the developmental process. The structure and content of the majors is largely determined by accreditation standards (in the case of the engineering programs) or by commonly accepted practices at other high-quality educational institutions.

The third major piece of the academic curriculum is commonly referred to as the general education component. It is made up of a collection of courses and experiences that are intended to equip our graduates with a toolbox of general knowledge, understanding, skills, and values that are deemed adequate and appropriate for "well educated" Coast Guard officers. Because the benefits of this part of the curriculum are not so easily and directly demonstrable, and because we ourselves have not done an adequate job of articulating its meaning and importance, it has been the most difficult to design and defend. To complicate matters further, some of these courses may play dual roles as prerequisites for more advanced work in one or more of the academic majors. This general education component of the curriculum represents, nonetheless, the major opportunity for flexibility and breadth in the curriculum. Furthermore, it is the source of learning most closely linked to the broader career performance expectations alluded to above.

The Importance of Style

Although the structure and content of the third portion of the academic curriculum is the most obvious variable that influences the achievement of general education goals, it is not the sole determinant. Every course in the curriculum represents an opportunity to contribute to general education goals if they are adequately defined and articulated. This assertion may seem far from obvious to those who have been encouraged to define course goals in terms of subject matter content. The intent is not to imply that content is unimportant, but to suggest that the style in which that content is delivered and assimilated has a significant impact on the long-term value of the educational experience. In contrast to the subject matter content, which is often closely prescribed, the style of presentation is a variable over which the individual instructor has a great deal of control. Instructors enjoy significant lattitude in the choice of examples, in emphasis, and in discussion of context. If they are properly sensitized to the opportunities and adequately trained in pedagogical techniques, they can contribute significantly to the overall intellectual development of the cadets without diminishing the importance of the specific subject.

One of the key ingredients of this variable I have called style is establishing connections with the students' prior experiences and existing conceptual frameworks. Every course in the curriculum should enrich and enlarge their experiences and add new structural members to their frameworks. Disciplinary boundaries are, after all, artificial barriers that we have created for administrative convenience. They are no less real for their artificiality, however, and connections do not happen spontaneously in most cases. Nor are they always obvious to neophyte instructors without some guidance and reflection. For a teacher to help make the critical connections requires both experience and a clear understanding of the overall educational goals.

The development of shared outcomes is a critical first step in the achievement of unity of purpose for the academic curriculum. The Academic Division Desired Outcomes[1] attempt to define some of the general educational objectives of the academic program in a format that can be related both to curriculum design and to individual courses. These objectives can provide meaningful guidance for the style of delivery of specific courses, and they may be useful in many structuring and course selection decisions. To put the entire package together in a philosophically satisfying way, however, requires an appropriate general theme. What is the common goal toward which all of the courses and all of the outcomes are directed? What is the key capability we hope will emerge from the cadet experience? These are the questions this paper attempts to answer. Although the principles discussed will be phrased primarily in terms of the design and justification of the general education portion of the curriculum, they are intended to apply to all aspects of the academy educational experience.

Identifying the Issue

The Coast Guard Academy is not alone in wrestling with the challenge laid out above. Military educators have long sought to articulate a satisfying and persuasive philosophical rationale for the general education goals of the officer preparation curriculum. Like the faculties of pharmacy, business, or nursing schools, they agree almost unanimously that their graduates need to be "well educated" in some appropriate sense. They may even agree on some of the common skills such well-educated graduates should possess (writing, speaking, critical analysis, etc.). However, when it comes to negotiating the specific structure of the curriculum and the distribution between professional/vocational career preparation and so-called "general education" (predominantly social sciences and humanities), competing interests have often found themselves in seemingly irreconcilable conflict. In the military academies the issue goes well beyond the historical "education" vs "training" (or "Athens vs Sparta"[2]) debate to question the fundamental structure and presentation of the "purely academic" component of the military academy experience.[3] Some educators feel the emphasis should be on content, or mastery of information and concepts, while others prefer to concentrate on the development of transferrable skills and personal attributes. The requirements of professional accrediting bodies often complicate the issue further by imposing external constraints on curricula that appear to limit local options. If the proponents of sound general education are to hold their own in this confusion of philosophical and pragmatic agendas, they must develop a fundamental model which can provide thematic focus for their attempts to shape and justify their role in the officer preparation process.

Defenders of general education goals in professional schools and military academies often cast wistful gazes at the traditional liberal arts colleges that occupy the other end of the academic spectrum. With their "distribution-plus-concentration" approach to undergraduate education, these colleges enjoy unequalled luxury of choice in covering most of the common general education goals without intolerable compromise. They are almost universally accepted as the ideal model for general education. How attractive it would be if only their philosophy could be adapted to the professional school environment, albeit in an appropriately scaled-down form! As pointed out above, however, much of our curriculum is prescribed by professional requirements, and the general education component is a relatively small percent of the total academic experience. Furthermore, time periods that can be reserved for reflection in the liberal arts college atmosphere are often preempted by training and indoctrination activities. With these constraints, attempts to emulate the liberal arts college approach are almost automatically doomed to failure. It is simply impossible to define and develop fully the intellectual themes that are the cornerstones of the distribution system in a drastically abridged format.

Most professional schools have attempted to capture the essence of the liberal arts college experience by constructing general education curricula which "sample" the social sciences and humanities. The Coast Guard Academy has certainly been no exception to this generalization! This approach guarantees that no department or field will have enough time at center stage to develop coherent themes or habits of thinking. All hope rests, therefore, on the existence of an interdisciplinary integrative process that can pull together the disparate samples into some kind of lasting intellectual impact. There must be a unity of purpose that is not only shared by the faculty, but can be communicated to the students in a fashion that can capture their imaginations. Given that interdisciplinarity enjoys no stronger tradition at military academies than at liberal arts colleges, the effort to integrate can only succeed if it is driven by a strong and pragmatically appealing vision. The purpose of this paper is to argue that it is possible to develop such a model that works.

Finding the Theme

What is the underlying difference between liberal arts colleges and military academies? They share a common basic structure which includes a four-year program of studies, and few deviate from the model of two semesters or three quarters per academic year with a normal load of five courses or the equivalent. Indeed, many of the common courses differ little in either style or content, as evidenced by their ready acceptance by transfer in either direction. Even the structure of the curriculum itself is often not as dramatically different as might be assumed. It can be argued convincingly, however, that the fundamental missions of the institutions are driving forces which produce diverse attitudes toward the undergraduate educational experience.

A typical liberal arts college mission is to prepare students for life as informed, responsible, and thinking adults (sometimes within a particular religious or cultural tradition). To this end, the curriculum is designed to impart a body of treasured knowledge (the "canon") considered indispensable for any educated person. In addition, the faculty strive to develop general intellectual skills and habits of mind that are universally transferrable and can be applied to any life situation the student may eventually encounter. The most common criticism this philosophy of education has had to face, of course, is that it ignores marketplace realities and may fail to equip its graduates with adequate vocational skills.

By contrast, the primary mission of a military academy is to produce commissioned officers for the parent service. Unlike liberal arts college students, all qualified graduates are guaranteed jobs with the same employer. Although their career paths may diverge considerably as time goes on, their initial assignments will have many more similarities than differences. Most significantly, their early professional evaluations will be based very heavily on their success in performing a set of common tasks that are normally delegated to junior officers. Because feedback to the educational system derives primarily from the performance evaluations of these junior officers, it contributes strongly to a fixation on the vocational training, or "task-performing," aspects of the military academy program.

Presidents of large corporations are often heard to say they owe major credit for their success to the liberal education they received at their alma maters. This is usually in spite of the fact that the college curriculum provided them with few or any of the most vocational of the skills they used in reaching the top. On the other hand, senior military academy alumni appear to acknowledge their undergraduate experiences primarily for the development of discipline, stamina, and self-confidence. They seem much less inclined to perceive the academic program at the academy as an essential phase of their intellectual growth. More particularly, they tend to attribute their success in the later stages of their careers more exclusively to experience, dedication, "common sense," and hard work. In fact, the fundamental officer career development philosophy is grounded in the premise that basic intelligence plus experience equals performance ability. Especially in the lower ranks, the system assumes implicitly that all have the same intelligence and that the same amount of experience always yields the same amount of ability. Little is done to recognize and develop the

reflective abilities that will be so critical to those who ultimately rise to policy making levels. It is interesting to note that many organizations have philosophies of leader development that are significantly different from the military model in this respect.

This confusion of purpose is definitely not a result of inferior educational programs at our nation's military academies. The success of the majority of our alumni in graduate schools and a variety of other intellectually challenging assignments indicates that quality of preparation is not a major issue. There is no need to raise the ominous specter of major curriculum reform or other upheaval. What we do require, however, is more serious attention to defining the general educational goals of the curriculum, making sure they are understood by all participants of the enterprise, and integrating them fully into the institutional culture.

This paper explores one of the possible constructs of a fundamental basis for justifying and structuring the educational portion of the officer preparation program. It proceeds from the assumption that decision-making is a universal common denominator for all commissioned officers. Thence it will be argued that future officers should be prepared specifically for the decision-making function, and that their education should be deliberately designed to give them practice and guidance in making increasingly complex and difficult decisions. This is the approach I will call "Educating for Choice-Making." The paper will conclude with a discussion of some of the ways the general theme may be implemented within the framework of the CGA program.

Making Choices

The principle of free choice has captured the imagination and roused the passions of idealists for centuries. Indeed, it is the guiding light of the great American democratic experiment, and a central theme that runs through our chartering and governing documents. Our founding fathers held this principle to be most precious and vowed to defend our right to choose, whether it be professions, religious practices, political affiliations, or places of residence. The only theoretical limitation to the right of free choice, in fact, was that we should not infringe on the rights of others to make their own choices. This institutionalization of the principle of free choice was virtually unprecedented as a fundamental principle of government and still can claim to be a unique characteristic of our society.

Ironically, this drive to attain and safeguard freedom of choice often seems to run counter to basic instincts of human nature. We sometimes seem almost schizophrenic about the right to make choices, at the same time worshiping and fearing the concept. Many oppressive dictatorships have remained in power because they removed from the populace the option of making choices. By relieving the people of this awesome responsibility, they reduced life to a simpler level where the daily tensions and discomforts of decision-making were replaced by the security and dependability of a totally regulated but utterly predictable existence. Some found the latter a more tolerable burden than the former. For example, many Russians who grew up in the Stalinist era find it difficult even to conceive of the bewildering array of decisions that face middle-class Americans in the course of their daily existence.

Many societies have devoted great energy to attempts to construct elaborate and exhaustive codes of behavior that could regulate human behavior in a more or less voluntary context and thus remove the terrible onus of continual choices. The universality of these attempts, which are not limited to any single culture, country, or continent, suggests that avoidance of choice and decisions is indeed an instinctive need for a significant fraction of our species. The power of ritual and dogma must never be underestimated, for they are capable at times of seducing even the purest and most independent of free thinkers. Those relieved of the pressure to make choices are sometimes rewarded by being allowed to enjoy much less intellectually demanding but often more exciting and emotionally unambiguous adventures. These observations should be taken as strong signals that defense of the free choice principle cannot be taken for granted. Any effective educational program

should devote serious attention to developing an understanding and respect for the role of choice-making in our society. It will be argued below that this is especially important for the education of future commissioned officers in the military services.

Choice and the Commissioned Officer

Let us examine the role of the commissioned officer in a modern military organization. If we look beyond the symbolic and ceremonial functions that are no doubt as old as the concept of hierarchical organizations, it can be argued that their purpose is to make choices in those situations in which the operative code or doctrine is ambiguous. I submit that this assertion is true independently of the relative rigidity or flexibility of the overall system or society within which the military organization operates. The society or the culture determines the value system that influences the choices and the organization establishes the allowable ranges of variable parameters, but in all cases the commissioned officer functions as the "trusted agent" of Higher Authority who can be counted on to make the "right" decisions when published guidance is not conclusive.

In principle, one might imagine an infinitely wise and experienced sage (or perhaps a "think tank" in contemporary governmental style) who could foresee every conceivable situation in which a military unit might find itself. This great savant or group of tribal elders might then construct a master code that would specify the action to be taken in each and every one of these situations. In this way Higher Authority could be perfectly assured that the "right" decision would be made in every instance, and the discomfort and uncertainty of individual choice could be avoided.

In practice, of course, not even the most optimistic idealist would claim that such an undertaking has any chance of success. Even if the code could be constructed, its very complexity and the rate of unavoidable change is so great that it would become obsolete in the time required for its inscription and promulgation. Furthermore, none of us believes that any mortal inspiration can claim such all-inclusive knowledge. Thus the "code of behavior" concept can, at best, only hope to cover very limited subsets of human decision-making. Furthermore, the slavish adherence to a "situational code" system of decision-making can be absolutely disastrous in wartime if the code happens to fall into the hands of the enemy.

Somewhat more promising is the procedural or "algorithmic" approach to uniform decision-making. That is, we might imagine developing a set of equations that could generate proper decisions when they are fed appropriate input data. The user of the algorithm would need only enter the values of a sufficient number of parameters to characterize the situation, and the model would generate the "right" decision. The simultaneous development of more powerful computers and theories of artificial intelligence is producing "expert systems" that are capable of modeling more and more complex systems. Although it offers the potential advantage of a much more powerful, more compact, and less cumbersome representation of the problem solution, this approach still suffers from most of the shortcomings of the code. We are a long way from being able to develop a sufficiently complex and accurate model which is capable of generating "correct" decisions in all real-life situations. Even if it is ultimately successful, this approach will still be vulnerable to compromise of the security of the algorithm.

It seems almost a perverse law of nature that every decision we should expect to be a model of clearcut simplicity comes equipped with at least two equally attractive (or distasteful) alternatives. As military officers rise in rank, they may begin to doubt the laws of statistics when they find themselves faced with more and more difficult "win-win" and "lose-lose" decisions. "Where," they may ask, "are the win-lose (black-white) choices that are so much easier and more immediately gratifying to make?" The answer, of course, is that junior officers and petty officers are quite capable and willing to make the easier choices, so they are seldom brought to the attention of senior officers in a properly functioning military unit.

Thus we will adopt, for the purposes of this discussion, the thesis that the most essential function of the commissioned officer is to make intelligent choices in situations where the official doctrine or code of behavior fails to provide unequivocal guidance. If we accept this argument, then we are led inescapably to the conclusion that the most important goal in the preparation of future officers is that they be capable of making these choices with sufficient wisdom and reliability that we are willing to trust their judgment when they are operating as our agents. The discussion above suggests that vocational training and a "hit or miss" general education cannot suffice to guarantee the quality of the decisions they make on behalf of the supreme authority. Indeed, the abilities we seek can only be developed from a solid and rigorous educational foundation that is consciously and thoughtfully designed to celebrate and cultivate the choice-making function.

Attributes of Choice-makers

If future officers are to be capable of making intelligent choices, there are certain abilities and knowledge they must acquire. Let us attempt to enumerate a few of the requirements for successful decision-making. This list is not complete, but it is an adequate foundation for the discussion which follows.

a. They must understand the parameters and constraints of the system within which they operate. This means, at the most elementary level, that they must be thoroughly familiar with such specific codes or algorithms as may be operative in the situations they can expect to face. They must also understand the limits of their discretion and the assumptions they are, or are not, free to make.

b. They must be able to analyze complex situations and identify the choices available to them. This includes classifying and prioritizing potential options and identifying those that must be rejected out of hand because they fall outside of the allowable range of individual discretion allowed by the guidelines.

c. They must understand the consequences of each of the available choices. These consequences may be technical, financial, environmental, political, ethical, or purely personal. Thus a substantial degree of sophistication is to be demanded, together with a significant knowledge of the general operational environment.

d. They must develop a personal strategy for making their choice, once they have identified the options and explored the consequences. Ideally, their decisions should withstand the test of historical scrutiny. In any event, the officer must be able to articulate the rationale upon which the choice was made.

e. They must be able to formulate a plan for carrying out the choice they ultimately make. This means they must understand how the system operates in sufficient detail to recognize the various actions that are required in order to bring about a desired result.

f. They must be able to present and advocate the choice they have made in such a way that those whose support is required understand its logic and can be persuaded to participate wholeheartedly in its implementation.

If the military officer is to be comfortable with the knowledge that he or she is expected to make difficult choices as a primary job function, then the education and training must be designed to cultivate and exercise this function and to build individual confidence in the ability to make these decisions when the time comes. This goal can best be achieved if it is incorporated into the curriculum and training program at all levels, and if the students are made willing partners in their own development.

Relating Choice to Education

How does one go about educating young men and women in such a way that they understand and accept the importance of making choices? The most direct way, I suggest, is to relate choice-making to the learning process itself. This means that faculty members and others in military colleges who are charged with the education of future officers must not only understand the basic mechanisms of the learning process, but must also be able to articulate them in ways the students can relate to. Since few college faculty members have formal training in pedagogy and theories of learning, the education process must begin with those who are the teachers and mentors of the future officers.

Fortunately, a great deal of work has been done by scholars concerned with the mechanisms of the learning process that can be adapted to the military college environment. There are many theories that attempt to describe the intellectual development of young people of college age, and several have been shown to be successful as foundations for instructional strategies. A very widely quoted example is that of Perry,[4] who lays out a very general and useful framework, but one that is based almost exclusively on the study of the development of males. Those who teach in the more diversified environment of most contemporary colleges need also to read works such as that of Belenky, *et al..*,[5] who discuss learning development from the female viewpoint. For the purpose of the present argument, I will borrow heavily from these authors and paraphrase their ideas to describe four levels of decision-maker development. They are deliberately rephrased to reflect the first-person perceptions of an officer candidate in the process of learning to make choices.

Level I: "Please tell me I don't have to make any choices. Give me a set of rules that tell me what to do in each situation I will have to deal with. I promise to memorize the regulations and to follow your instructions faithfully."

Level II: "I reluctantly acknowledge your assertion that there is no single, infallible set of rules and that I must occasionally make choices. However, please tell me that I can make these choices by flipping a coin or consulting my astrologer."

Level III: "I now believe that I cannot avoid making choices, and furthermore that not all choices are of equal value. However, I hope you can provide me with algorithms that I can use to select the optimum choice when I encounter those uncomfortable situations."

Level IV: "I have come to recognize that making choices is the essence of intellectual maturity. Choice-making as an activity is not only unavoidable, but is highly rewarded when practiced intelligently. I want to take advantage of this opportunity and I want to become a chooser and a developer of decision algorithms."

Most contemporary research suggests that many college students arrive from high school at Level I. Even in highly selective colleges, few exceed Level II at the beginning of their college careers. Thus college faculties are clearly faced with a very substantial challenge if they hope to guide a significant fraction of their students to the most desirable Level IV. If, as this discussion implies, commissioned officers should be able to function at Level IV, this places a very special demand upon any educational program that pretends to prepare young people for service as commissioned officers. The assertions made at the very beginning of this paper about the unique nature of commissioned service in the Coast Guard imply that CGA, of all service academies, must be especially sensitive to this issue. Indeed, we can even state as our common goal that every graduate should be a Level IV choice-maker.

Educating for Choice-Making

How does one translate these ideas into the reality of a military college curriculum? Have we raised an issue that simply has no relevance to much of the academic curriculum? After all, the traditional purpose of introductory college courses like calculus or general physics or American history is to impart a specific body of knowledge or develop a defined set of skills. To suggest that the concept of choice should somehow be integrated into the traditional core of the military college freshman curriculum is akin to suggesting that ethical or cultural values be incorporated into the teaching of scientific or engineering subjects. The latter suggestions have already been made, as a matter of fact, by numerous educators and professional society representatives. Perhaps, then, the concept is not so revolutionary after all.

There are many experienced and dedicated educators who feel that certain college courses should be presented in a value-free context. Indeed, this concern cannot be brushed aside too casually, for the overzealous pursuit of peripheral agendas could compromise the intellectual objectivity and integrity of the intellectual experience if carried to an extreme. There are, however, numerous documented success stories in the educational literature to demonstrate that developing integrative intellectual abilities is not inconsistent with the teaching of concepts and imparting of knowledge. In fact, learning that takes place within the context of a decision process sometimes may "take" much more effectively than that which is passively received in a traditional, "pure" educational environment. It must be kept in mind, however, that the average college professor has had no formal education in pedagogy or developmental theories. Some may have acquired an instinctive understanding and appreciation of the mechanics of the learning process through experience and acute observation. Most, however, come from a tradition that emphasizes content and subject matter competency. Furthermore, junior instructors who are struggling to master their disciplines and to acquire the basic teaching skills are seldom in a position to reflect on innovative concepts in higher education. It cannot be assumed that a proposal to rethink the learning outcomes of an academic course can either be accepted uncritically or put into practice without a great deal of forethought and careful planning.

An institution wishing to integrate a common theme like choice-making into its curriculum must begin with a general discussion of the philosophy and goals of the initiative. Few programs of improvement or enrichment will succeed unless they enjoy the support of the overall institutional culture. Faculty must be reassured that their teaching abilities are not being questioned, but only that new opportunities are to be explored. The objections of skeptics must be received with respect and responded to honestly and thoroughly. The administration must be willing to provide workshops or other training exercises to lay the theoretical framework for choice-based education and provide practical guidance for applying the principles in specific courses. In this process, significant attention must be devoted to demonstrating the potential benefits in ways the faculty members can accept and appreciate. Moreover, the high rate of faculty turnover at CGA means that this discussion process must be continued year after year.

Almost without exception, educators who have thought about and worked with new learning concepts agree that it is important to share the process with the students from the very beginning (See Nelson,[6] for example). Specific teaching techniques may succeed spectacularly in some cases, resulting in very substantial improvements in learning, retention, and ability to apply understanding to new situations. If, however, the students feel that they have been "manipulated" by a clever practitioner in the sense that a hypnotist might control their behavior in an ostensibly involuntary fashion, the result may be resentment and resistance to further development of the abilities in question. The paramount goal, after all, is to motivate students to internalize the habits of learning and apply them voluntarily throughout their lives. Most students accept this goal at some level of commitment, and it is important not to alienate them by attitudes or practices that appear to patronize them.

It is also important to exercise restraint when appropriate and not oversell the choice-making model as the rationale for general education. The danger of an over-zealous approach is that the students may come to view their general education in an exclusively vocational framework. Although we certainly want them to appreciate the practical values of being "well educated," it would be a tragedy if in the process we lost the purely esthetic dimension. No matter how specific its purpose, any educational system owes its students some glimpse of the joy of learning for its own sake.

The Basic Tools

Our list of attributes of successful choice-makers implies mastery of a number of basic skills that can be developed most effectively through the general education curriculum. For example, it was suggested that ultimate decisions need to be articulated in such a clear and convincing manner that those who must implement them not only understand what has to be done, but also believe the correct choice has been made. The academic curriculum is an ideal vehicle for the contextual development of written and oral communications skills, and they should always be taught with the goal of persuasion clearly in mind. In addition, the successful persuader must understand the basic principles of psychology, group dynamics, and organizational theory. He or she must be conversant with a variety of cultures and value systems in order to carry out the persuasive function among an increasingly diverse population.

The process of analyzing complex problems and recommending solutions presumes a basic understanding of the role and evaluation of evidence, whether it be hard scientific data or vague and subjective opinions. To work from the evidence to a workable conclusion requires mastery of the logical process of constructing a proof. These abilities should also be developed through the academic curriculum by insisting that student papers be rigorously analytical, and not simply expository. They must be led early in their programs to develop the habit of defending their positions on the basis of objective and logical analysis, and they should be challenged when they fail to do so.

All of the choice-maker attributes can be analyzed in this manner to identify the fundamental intellectual skills they depend upon and to relate them to the academic curriculum. Officer candidate students need to be made aware of these connections as early as possible, and instructors should take advantage of every opportunity to reinforce them and to develop very consciously the choice-making abilities. This awareness and constant reinforcement are critical to the recognition of the essential role of the general education curriculum in the officer preparation process.

If these connections are not made explicitly, it is possible to neglect quite innocently some of the most critical skills. An example that comes readily to mind derives from the fact that any decision requires its maker to be in possession of a body of information. Rarely is the requisite information already at hand, but it must be assembled from a variety of sources. This immediately implies familiarity with contemporary information storage and retrieval systems, of which the traditional library is the first example normally encountered by officer candidates. Military academies have generally done an inadequate job of relating information skills to decision-maker attributes, and their libraries and information systems have fared poorly in the budget process as a consequence.

The observant reader will be struck by the number of choice-maker attributes just discussed that are addressed by the Academic Division Desired Outcomes. I hope this will reinforce the sense of connectivity and underline the theoretical significance of the choice-making concept as the common theme that offers a focal point for the Outcomes. Just as the Academy speaks of its mission, its goals, and its objectives, the quest for unity of educational purpose must be undertaken at all levels of activity.

Putting Theory into Practice

The point of this paper is not to suggest that the development of choice-making skills in academic courses is a revolutionary concept. Specific courses in decision-making already exist, of course, and other subjects are traditionally presented in ways that offer opportunities to develop choice-making skills. Frequently, however, the relationship is neither obvious to the students nor fully exploited by the teacher. What the instructor has internalized and now views as instinctive understanding may escape the students altogether. Furthermore, the students may have difficulty relating the decisions they learn to make in the classroom setting to the situations they will face in later years in the pursuit of their careers. Each instructor or course developer must consider specifically how the concept of choice is introduced and developed in individual courses, and how the students will apply those skills in the context of their jobs. The latter requirement is much easier to satisfy in a military academy, of course, where all of the students are destined to work for the same employer and to share common goals.

Although it may not be immediately obvious, freshman survey or foundations courses can play an important role in setting the stage for the development process and drawing the students themselves into the scenario. As an illustration one can consider general chemistry, which is required of every fourth-class cadet at CGA. Students begin by acquiring a working vocabulary and learning a set of basic rules. For example, they are told that elements on the left side of the periodic table are metals and those on the extreme right are inert gases. They memorize the classifications and functions of a few common chemicals such as hydrochloric acid, sodium hydroxide, methane, etc. They also learn to apply simple algorithms to predict oxidation numbers, acid-base character, and other simple chemical properties. The student who dutifully accepts these facts and rules without questioning the instructor's authority or reasoning is functioning at Level I.

Later in the general chemistry course the instructor begins to introduce elements of ambiguity by describing a few alternative models for describing the same phenomena. For example, molecular structure might be predicted by molecular orbital, valence bond, or electron-pair repulsion theories. Students who accept these alternative theories and learn to apply them mechanically and uncritically to non-trivial examples have progressed to Level II, at least in the context of this subject. Experienced and thoughtful instructors may, in fact, succeed in coaxing true Level III thinking out of highly motivated freshmen by encouraging them to make and defend choices among competing models for a particular application.

For a quite different example, consider the standard freshman literature course. Instructors may begin by introducing recognized "classics" and telling the students why they are of value. Level I students accept the statements of the instructor without question. The next step may be to discuss more controversial literary works and to present the analyses of different critics who disagree on their merits. This brings the students face to face with the issue of ambiguity in humanistic fields and thus encourages them to move to Level II in this context. If they can be further stimulated to adopt a set of general principles of literary criticism to create their own analysis of a work they have not seen previously, they may have moved to Level III in yet another area.

Finally, senior engineering design projects are excellent opportunities to prod cadets to develop Level IV attributes. If properly designed, they will require the students to deal with ambiguities, to make critical choices among several alternatives, and even to develop their own algorithms. The projects should lead the cadets to make connections to other facets of their academic experience and should create circumstances in which spontaneous insights are likely to occur. To be faithful to the Level IV philosophy, the ideal senior project should aim both for confidence-building successes and for tantalizing glimpses into the benefits of further study.

This simple analysis can, in fact, be applied to any college course at any level. Every CGA instructor should carefully review his or her course design to make sure that one of its outcomes is to raise the choice-making capability of the average student by at least one level in the context of that course. Failure to meet this criterion should be taken as a mandate to rethink the course goals and/or method of presentation. In the extreme case it might even call into question the continued existence of the course in its current role.

An objective such as the development of choice-making abilities can be viewed from a variety of vantage points. An individual teacher who has a group of students in a class for one college semester should be concerned with enhancing the cognitive development of the students by one or more levels, within the context of that field of study. That improvement may or may not be readily transferrable to other subject areas, depending upon the nature of the subject matter, the intelligence and maturity of the students, and the skill and sensitivity of the instructor. Furthermore, the cognitive levels of the students may not be uniform at the beginning of the course. At the other extreme, those who are responsible for the overall curriculum must ensure that the average level of development increases as the students progress through the curriculum. Thus courses taken by students in the upper division should assume higher initial levels of development and should be expected to result in the attainment of correspondingly higher final levels. Clearly there should be a steady growth in cognitive levels of the students as they move from the first to the last year of their college experience.

The adoption of a theme like the choice-making function presents a special challenge to those charged with overseeing the overall curriculum. In practice this means primarily the Dean, the Faculty Curriculum Committee, and those in charge of specific academic majors. It should be relatively easy to make sure there is an orderly prerequisite sequence and that the courses become increasingly challenging and sophisticated as the students move through the curriculum. However, this does not guarantee that the level of development automatically increases as a result. Clearly the Curriculum Committee must develop suitable criteria they can use to examine new proposals and assess their developmental contributions to the choice-making process and to the other general outcomes of the educational program.

Generalizing the Process

Ideally, a student who has learned to operate at Level III in physics, let us say, should be able to function at the same level in another subject. In practice, of course, modes of thinking are not automatically and instinctively transferrable. It is for this reason that the connections must be made explicit and reinforced repeatedly until the students are able to take control of their own development processes. If this aspect of the process is neglected, we cannot hope that the experience of growth in one field will inevitably decrease the time required to reach the same level in another area.

If this process is to achieve its intended goals, it is absolutely essential that the curriculum lead the students along a clearly identified developmental path. Thus the design of specific academic courses should take into account not only the traditional considerations of prerequisite knowledge, but also their chronological positions in the overall curriculum. A course offered to third or fourth year students that requires no intellectual activity beyond Level I or II should expect to have its contribution to the common educational goals most vigorously questioned. In a first-year course that presumes Level III or IV development, by the same token, a significant fraction of the cadets will almost certainly fail to reach the objectives. These key points must be kept in mind by the Curriculum Committee or others responsible for overseeing the general curriculum and reviewing proposed course offerings.

Our model suggests that the successful application of this philosophy of officer candidate education also has implications for faculty attributes. It has already been acknowledged that a

thorough understanding of theories of intellectual development has not been universally recognized as a prerequisite for teaching at the college level, and military academies certainly do not contradict this observation. We also pointed out that faculties must be willing to cross disciplinary lines and engage in dialogue with colleagues in other departments. In addition, the faculty must include individuals who are experienced and wise in the decision-making context of the Coast Guard. The process will work best, of course, when significant numbers of faculty members combine all of these attributes. Until they can be developed, however, there must be frequent and ongoing self-examination to make sure the educational goals remain true to the institutional mission.

Is it Working?

The loftiest goals are of little value if they are not being met. Having resolved to design a curriculum whose purpose is to prepare future officers to function as successful choice-makers, it is essential that we build evaluation processes into the system. The habit of assessing progress toward the achieving of outcomes serves two basic purposes. On the one hand, it provides feedback to instructors and curriculum designers for the validation and improvement of the educational program. Of equal importance, however, is to empower the students with a sense of progress toward identified intellectual goals and to encourage them to develop their own self-assessment abilities.

The assessment process is both essential and difficult, and it deserves careful attention. It should be frequent and it should be conducted by the faculty who are responsible for the daily operation of the curriculum. There is very general agreement that the most effective assessment exercises are those that involve the observation of students in the act of addressing the kind of intellectual tasks they will be expected to perform in the course of their careers. Successful practitioners of this approach would be well advised to begin at a very early stage to develop arsenals of thoughtfully conceived exercises that can be used to measure student progress toward the ultimate performance standards.

Just as the questions raised above must be asked at a number of different levels in the curricular hierarchy, so must the assessment exercises be conducted at all levels. I do not doubt that many course examinations already fulfill the assessment function or could be readily adapted to do so. Perhaps it is only necessary that feedback be given to the students in the appropriate context and that the instructor be properly sensitized to the pedagogical lessons that can be drawn from the results. In any event, the potential value of the final examination as an assessment tool must not be overlooked and should be a factor influencing its design. Assessors must bear in mind, however, that objectivity is normally a treasured attribute of course examinations. If the assessment exercise is to be complete, it must also explore the subjective responses of the students. One of our significant goals, after all, is to enhance the cadets' sense of self-worth and empowerment.

Senior design projects, internships, and other capstone experiences offer ideal opportunities for assessing the effectiveness of academic major programs. They are generally individualized, and hence they permit the kind of one-on-one interaction that enables faculty members to probe the capabilities and attitudes of the students in unparalleled depth and detail. Design projects are particularly valuable when they can be selected as realistic examples of the kind of intellectual tasks the graduates may be expected to perform as Coast Guard officers practicing their chosen specialties. It goes without saying that these exercises must be sufficiently challenging and comprehensive to provide convincing evidence that the educational objectives have been met.

At the most general level, the traditional structure of the academic program does not provide a convenient preexisting instrument that can be adapted to the purposes of assessment. Here the Academy must take the initiative and design assessment tools that can measure the achievement of its more general and more subjective goals. One of the options that suggests itself is the exercise concept, in which cadets would be required to deal with realistic scenarios like those they might

encounter eventually as Coast Guard officers. Thoughtfully conceived scenarios can require them to draw upon a wide range of skills and knowledge without regard to disciplinary categories. They can also be forced to deal with logical ambiguities, conflicting values, and inadequate policy guidance in ways that test their professional and intellectual growth. If properly designed and conducted, this kind of exercise can not only yield very important information on the quality of goals achievement, but it can also be very enjoyable for all those involved.

Epilogue

Near the beginning of this paper I discussed the role of the liberal arts college as a model for the theme and purpose of general education. I hope it is clear to the reader that the goals of the military academies are really the same as those of their liberal arts counterparts, but that they must be achieved in very different contexts. It would be a serious mistake, I believe, if military educators were simply to dismiss the liberal arts philosophy as an irrelevant or impractical model. I am convinced that we must maintain a regular dialogue with our colleagues in the liberal arts colleges, for we have much to learn from them. Our challenge is to be creative in adapting that which is universally good to the particular culture and environment of the U.S. Coast Guard Academy. It is my dream that we might someday be seen as another successful model for the theme and purpose of general education.

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